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ABSTRACT

This paper reports on an action research project focusing on curricular interventions for improving geographic knowledge and application skills in elementary students. The targeted population consists of third- and fourth-grade students in a middle-class community in southwest suburban Chicago. The deficiency of geographic literacy was documented through teacher-made tests, observations, and surveys. Analysis of probable cause data revealed that geographic skills were often taught in an isolated manner that lacked relevance for the students. The discipline of geography was not given adequate instructional time during the average school day. Geography was often taught with an emphasis on rote memorization skills and did not address the varied learning styles and intelligences of students. A review of solution strategies suggested by knowledgeable others, combined with an analysis of the problem setting, resulted in the selection of two major categories of intervention: integrating geography throughout the curriculum with an emphasis on literature; and the construction of lessons around the various learning styles and intelligences of students. (Author/EH)

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ED 406 295

DEVELOPING ELEMENTARY STUDENTS' GEOGRAPHIC KNOWLEDGE AND APPLICATION SKILLS THROUGH CURRICULUM INTEGRATION

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An Action Research Project Submitted to the Graduate Faculty of the School of Education in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Teaching and Leadership

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ABSTRACT

This report describes curricular interventions for improving geographic knowledge and application skills in elementary students. The targeted population consists of third and fourth grade students in a middle class community located in southwest suburban Chicago. The deficiency of geographic literacy is documented through teacher made tests, observation, and surveys.

Analysis of probable cause data revealed that geographic skills were often taught in an isolated manner that lacked relevance for the student. The discipline of geography was not given adequate instructional time during the average school day. Geography was often taught with an emphasis on rote memorization skills and did not address the varied learning styles and intelligence of students.

A review of solution strategies suggested by knowledgeable others, combined with an analysis of the problem setting, resulted in the selection of two major categories of intervention: integrating geography throughout the curriculum with an emphasis on literature; and the construction of lessons around the various learning styles and intelligences of students.

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Chapter 1

PROBLEM STATEMENT AND CONTEXT

General Statement of Problem

The students in the targeted third and fourth grade classes lack the knowledge and skills necessary to apply geographic concepts. Evidence for the existence of this problem includes teacher observations, teacher and student journal entries, and teacher made assessments that indicate geographic awareness.

Immediate Problem Context

The targeted kindergarten through sixth grade school has 432 students enrolled. The student population is predominantly White, non-Hispanic. Approximately 2% of the students are Hispanic and one and a half percent of the students were Asian-Pacific Islander. The student population includes 2% with limited English proficiency. Students from low income families make up approximately 3% of the enrollment. The student mobility rate during the year was at 4%. There were no chronic truants, nor were than any retentions or expulsions. The attendance rate was at 97% (Community Consolidated School District (CCSD) 146, 1994a).

The school facility has been in existence since May of 1972. It is a modified open classroom building with a flexible floor plan. This floor plan allows for up to 18 individual classroom areas, as well as a gymnasium, music room, and media center. The

school recently installed a computer lab which can accommodate up to 32 students (R.J. Gardner, personal communication, April 1,1995).

The school employs 29 certified teachers, six of which were employed to service special education students. Sixty-six percent of the certified teachers have earned or will have received a Masters Degree within the next year. The average teaching experience is approximately 15 years (CCSD 146, 1994b). The school also employs one social worker, one speech therapist, and one English as a Second Language (ESL) teacher. The school's programs are supported by eight non-certified teaching aids. The administration consists of one building principal, a secretary, and a Registered Nurse.

Students are grouped in heterogeneous classes with a student-teacher ratio of 19:1. Special education services are provided to 41 students or nine percent of the student enrollment through an inclusive setting. ESL services are provided to less than one percent of the student enrollment. The school district's response for students identified as "gifted", Opportunities for Resources for Enrichment Program (ORE), was designed to provide challenging activities for students. Although 108 students, or 25 percent of the student enrollment were identified for inclusion in the ORE program, participation was not restricted to those students (CCSD 146, 1994a).

Students in kindergarten through sixth grade participated in an academic program that includes an average of 180 minutes of language arts, 65 minutes of math, 30 minutes of science and 30 minutes of social science instruction per day. Music and physical education are taught on alternating days with students spending 30 minutes in direct instruction. Classes in media and library skills are held in the school's media center for

40 minutes per week. Students also spend 60 minutes per week in the computer lab participating in various activities. Art is taught on an average of 60 minutes per week. Extra curricular activities are open to student participation and include student council, intramural sports, and chorus.

The school's academic program is greatly enhanced by parent volunteers who plan and coordinate many activities for student involvement. Examples of these programs include the Accelerated Reader Program, cultural arts performances, and art appreciation lessons. These programs are supported in full by an active Parent Teacher Organization.

The social sciences for students in grades kindergarten through third are taught through whole language methods. Students in grades four through six receive instruction primarily through a textbook program. Map skills are not formally addressed in the curriculum. Students traditionally rank at or significantly higher than the state average in Social Studies on the Illinois Goal Assessment Program (IGAP). The results of the IGAP are similar in math, reading, writing, and science (CCSD, 1990b).

The Surrounding Community

The school community is a middle class, southwest suburb of Chicago, Illinois with a population of approximately 26,000 people. Although there is a small town atmosphere, it is a fairly progressive community. A commuter train provides easy access to downtown Chicago. There are ample forest preserves with many recreational facilities, including sixteen parks, miniature golf, and a community swimming pool. The numerous

businesses contribute a great amount of money back to the community (Nolan, 1995). The business community continues to grow and support the local economy.

There are approximately 7,100 single family homes and just under 2,000 multi-family housing units. The median home value in the community was $124,400 with a median family income of $44,099 (Nolan, 1995; Research Services Department, 1990). The families with students attending the targeted school tended to be in the upper range of these figures.

The racial make-up of the community is predominately White, with less than one percent Black, approximately two percent Hispanic, and one percent Asian and Pacific-Islander (Research Services Department, 1990). Approximately 83% of residents over 25 years of age are high school graduates, 16% have earned a bachelor's degree, and almost 6% have attained post-graduate degrees. Twenty-five percent of the work force hold managerial or professional positions. Thirty-six percent hold technical, sales, or administrative jobs. Seventy percent of women with children under eighteen years of age are in the work force (CAGI, 1991).

The school district serves grades pre-kindergarten through eight. The district has one middle school that serves grades seven and eight, three schools that serve grades kindergarten through sixth, one school that serves grades pre-kindergarten through two, and one school that survey grades three through six. Each of these schools employ a building principal. A superintendent and two assistant superintendents supervise the day-to-day operations of the school district. A school board, consisting of eight elected members, governs the district. The district cost per student is $4,897.00.

Many educators, parents, and community members are involved in district-wide committees that have impacted the district's mission statement, goals, standards, and curriculum development. Imbedded in this work is the need to prepare students for a global interdependent and ever changing society (CCSD, 1993). This work has been supported by The American Forum for Global Education. In addition, all schools also have very active parent-teacher organizations that helped support school programs.

Regional and National Context of Problem

The lack of geographical knowledge of children and young adults in the United States has been the subject of much debate (Handley, 1990). In order to develop an understanding of this world, children needed to locate themselves within it. Increasing awareness of place is fostered by activities that build children's understanding in both familiar and unfamiliar environments (Nicholson, 1992). The necessity for and benefits of geographic education is evident in educational literature. According to Flaim and Chiodo (1994),

> The study of geography promotes spatial skills while it increases awareness of the broad and deep significance of location and place. It also prepares children for coping with and responding to local, national, and global issues by providing information, skills, and concepts essential for making informed decisions in our interdependent world (p.225)

Recent media coverage has expressed the idea that people in the United States have a limited knowledge of geography. In trying to address this problem, many schools

developed curricula at various grade levels that includes tests of key world locations. In view of this, children are using rote memorization skills rather than being challenged by understanding the geographic concepts in relation to location. When students do not understand landforms such as islands, peninsulas, cities, and states, the cultural connotations these terms carry are lost (Lockledge, 1991).

Another underlying problem is the difficulty children have in conceptualizing that the earth is a sphere (Handley, 1990). Also difficult for young learners to comprehend, are spatial patterns and orientation. Maps in classrooms often give a distorted conception of direction (i.e. South is down). Many of these misconceptions remain through adulthood (David, 1990).

It seems evident that the amount of classroom time spent teaching geography in the primary grades is insufficient. Also contributing to these weaknesses in geographic understanding may be that geography skills are isolated in the curriculum and not used or integrated throughout the rest of the curriculum (Dowd, 1990). In recent years, many studies have been done incorporating a variety of strategies to help relieve some of the shortcomings of the development of geography skills (David, 1990; Lockledge, 1991; Flaim & Chiodo, 1994; Nicholson, 1992; Handley, 1990).

Chapter 2

PROBLEM EVIDENCE AND PROBABLE CAUSE

Problem Evidence

In order to document the extent of the lack of geographic knowledge and application skills among the targeted 3rd- and 4th-grade students, several teacher-made assessments were administered. Student and teacher logs also were reviewed to further document existence of the problem.

During the first two weeks of the 1995-1996 school year, two pretests encompassing several geographic concepts were given. In the pretest of basic geographic knowledge (Pretest I), the students awareness of their location relative to other parts of the United States was assessed as well as their ability to identify landforms. (Appendix A). The second assessment was a problem-solving task done in cooperative groups (Pretest II) in which students were asked to apply their prior knowledge to a problem related to geographic concepts (Appendix B). Classroom teacher observed cooperative groups during this activity and recorded anecdotal records in teacher logs. Students were asked to reflect in their logs regarding their feelings about geography and the activity.

The results of the first section of Pretest I indicated that there were noticeable differences between third and fourth graders in the amount of students who were able to identify their location within the United States and the world. A summary of the test results for the first part of Pretest I is presented in Table 1.

Table 1

Percent of Students' Correct Responses on Location Section of Pretest

No. of correct items	3rd grade	4th grade
0-5	75%	10%
6-10	20%	61%
11-15	5%	16%
16-22	0%	12%

In analyzing the data collected, 95 % of the third grade students could not correctly identify half of the concepts presented. Only 5 % could correctly identify two-thirds of the concepts presented. No student could correctly identify more than 15 out of 22 items on the test. In contrast, 12 % of the targeted fourth grade students could correctly identify 70 % or more of the concepts. Over one-fourth of the students could correctly identify better than 50 % of the test items. While 71% of fourth graders could not correctly identify half of the items on the test, the majority of them could at least identify five or more concepts.

The second part of Pretest I dealt specifically with identification of landforms. The third grade teacher orally directed students to point to photographs of specific landforms. This procedure was done individually and the responses were recorded in the teacher log. The fourth grade students were shown the same photographs and asked to

match photographs to specific landform names written randomly on the chalkboard. The results of this part of Pretest I are presented in Table 2.

Table 2

Percent of Students' Correct Responses on Landform Section of Pretest

No. of correct responses	3rd grade	4th grade
0-3	25%	6%
4-6	55%	37%
7-9	15%	47%
10-12	5%	10%

A second pretest was given to both of the third and fourth grade targeted classes. The pretest was a cooperative group problem solving activity. Groups of three to four multiability students worked to solve a survival problem that required them to use prior knowledge of the southwestern United States desert region. Students were asked to answer seven questions which would assess their knowledge of place characteristics e.g. plant and animal life, natural resources and climate conditions. The responses of the group were recorded by a student writer. Teachers of the targeted classes worked together to score student responses for accuracy and detail.

In analyzing Pretest II for all targeted classes, the teachers noted the students' inability to accurately identify flora and fauna indigenous to the specified region. Students were only able to related basic information about climate and landforms. Many of the students' responses contained erroneous infomation that was in no way related to

the given region. For example, several student groups indicated that they would see buffalo and bear in the desert region of the southwestern United States. The average group score was 11 which revealed a 40% accuracy rate.

Probable Cause

The literature suggests many underlying causes for students' lack of geographic knowledge. The first of these is the isolated teaching of geographic skills. Often times these skills are relegated to a course and not used or not incorporated elsewhere in curriculum (Dowd, 1990). Flaim and Chiodo (1994), believe that geography is not just maps and globes but should be a subject woven into many aspects of the curriculum. Harthen (1992) concurs stating, "Many social studies educators agree that geographic literacy should not be taught in isolation but should be integrated within the context of content" (p. 15). Current curriculum relies on the familiar and tends to be short sighted in scope (Clark, Sears, & Smyth, 1990). Pigozzi (1990) agrees that integrating geography with social studies has some potential; however, he is concerned that in doing so, geography skills may lose importance. Therefore he strongly suggests that geography be taught as a separate subject by persons who have been trained at the university level in the discipline of geography. Pigozzi substantiates his view by further stating that preservice teachers participate in very little, if any training in the area of geography. In the training, they do have more focus put on rote memorization instead of conceptual skills. He suggests that teachers be provided with motivation and opportunity for developing an accurate view and background in geography (Pigozzi, 1990). Although Pigozzi's view on integration is contrary to the pervasive view in the literature, his

concerns in regard to teacher training have merit and may be considered another underlying cause of student geographic ignorance.

Another facet of instruction that may lead to geographic illiteracy is the failure of teachers to construct meaningful experiences to the student's world. Hudson (1990), states that activities must be familiar and relative to students. Too often children are made to memorize information relating to places, location, and exotic facts. Failure of our students to learn geographic knowledge is not caused by the inability to memorize information but rather the inability of students to connect meaning to knowledge learned (Pigozzi, 1990).

Handley (1990) points out that language arts and mathematics fill a large portion of the elementary school day. Geography instruction is often taught in fragmented, incoherent time slots. Dowd (1990) agrees stating that "The amount of classroom time spent teaching geography (of the broader topic social studies) in the primary grades-- approximately twenty five minutes if at all-- is insufficient" (p.68). Inadequate time spent on geography instruction is another probable underlying cause.

Standard curriculum has generally addressed logic and linguistics. It is deficient in the other five intelligences of visual /spatial, bodily kinesthetic, musical/ rhythmic, interpersonal, and intrapersonal, as identified by Gardner (White, Blythe, & Gardner, 1994). Particularly in the area of geographic instruction, spatial patterns and directional orientation are often difficult concepts for elementary students (David, 1990). Maier (1993) citing Downs and Liben, offers the explanation that students may not be developmentally ready for cognitive exercises involving spatial orientation information

on maps and globes. In understanding geographic location, children must understand how the part is related to the whole; "knowing that we are 'here' does not help much if we do not know where 'here' is in relation to 'there" (p.9).

A final probable cause found in the literature is the poor quality of textbooks. Clark, et al. (1990) feel that textbooks limit student ability to comprehend the subject matter as well as the use of language. Information is often superficial and uninteresting and does not encourage transfer of knowledge learned.

In conclusion, isolated teaching of geographic skills, failure of meaningful experiences to the students' world, geography taught in incoherent time slots, failure to teach to the seven intelligences, and poor textbooks all contribute to students' lack of knowledge and hinder their ability to apply that knowlege.

Chapter 3

THE SOLUTION STRATEGY

Review of the Literature

A study of the literature suggests possible strategies that can be used to increase geographic knowledge and application of the targeted third and fourth grade students. Such strategies include integrating curriculum around a broad-based concept, developing relevant meaning for students, planning learning experiences that address multiple intelligences, and using performance-based assessment.

One strategy that is mentioned repeatedly in the literature is that of a totally integrated curriculum. According to Martin-Kniep, Feige, & Soodak (1994) this is an idea that dates as far back in time as Plato and has been supported by educators since the 1920s. They further state that this strategy is a "promising means to make sense of what is learned" (p.6). Many experts in the field of curriculum integration suggest that curriculum be organized around simple, broad-based themes or issues (Court, 1991; Coombs, 1991; Martin-Kniep et al., 1994; Bailey & Dawsey 1992; Dowd, 1990).

This structure for organization is unlike traditional, discipline oriented curricula in that it helps students construct meaning for themselves and apply it to their world. It is also a means to help educators deal with an ever expanding world of knowledge.

> Curricular integration makes sense, or more emphatically is of paramount importance because it is both philosophically sound and pedagogically efficient.

It is essential because the child needs to live in the world inbred with an inherent sense (Martin-Kniep et al., 1994, p.6)

Since some themes in literature are closely tied to themes in social studies, some authors believe integrating these subjects will provide students with the greatest relevance. Freeman and Levistik, as cited in Clarke et al. (1990) say that stories present information in a subjective form that is closer to the way in which young children explain themselves and understand the world. In teaching geography, students can better grasp concepts if they are presented in a more meaningful form. Geographic problems, concepts, and issues become more understandable by gaining students' interests through the use of novels (Flaim & Chiodo, 1994). Louie (1993) says that "literature can make geographic concepts come alive for children. When teachers use literature as a medium to teach location, they also extend children's love of stories to geographic concepts" (p.17). In addition to making geography meaningful and exciting for students, literature also can give students a new perspective to see other people, places, and times (Clarke, et al. 1990) Not only does geographic awareness improve through integrating literature but as students are able to master new concepts and vocabulary, self-esteem is improved as well (Nijim & Nijim, 1992).

In using literature in conjunction with geographical studies, the five fundamental themes set forth by the Joint Committees on Geographic Education of the National Council for Geographers (1984) can be used as a conceptual framework (Flaim & Chiodo, 1994; Lockledge, 1991; Harthen, 1992; Oden, 1992; Norton, 1993). By using the concepts of place, location, movement, region and human environmental interaction,

students can learn to infer relationships between fiction and reality while developing multidisciplinary awareness (Flaim & Chiodo, 1994). Oden (1994) states that books can motivate students to think geographically when the five themes are used in an organizational manner. Norton (1993) describes a graphic organizer(Appendix C) which is a helpful strategy in combining geography and literature. Although there is much research to support the use of the five themes in geography instruction, Pigozzi (1990) warns that the current order of these themes reinforces the inaccurate stereotypes of geography as being "exotic". Instead, these themes should be taught as relating to the students' world.

Additionally, much has been written in recent years in regard to multiple intelligences. The theory of multiple intelligences states that each student has different strengths. In order for students to fully develop their potential, it is necessary for a wide variety of experiences and activities to be available in the school curriculum. Learning that emphasizes only logic and language will not successfully prepare all students. The shortcoming is not with the students, but with educational standards and curriculums that do not offer diverse opportunities for success. The talents of the students should be incorporated in learning activities to meet traditional educational goals (White et al., 1992).

In considering geographic literacy, several authors provide activities that use the kinesthetic domain (Handley, 1990; Banks & Gallagher, 1993; Kapp, 1991; Hudson, 1990; James, 1990; David, 1990), musical domain (Handley, 1992; Kapp, 1991) and the visual spatial domain (Maier, 1993) in order to expand the curriculum in a meaningful

way for students.), Banks and Gallagher (1993) citing Lincoln and Jacobs and Mamolyk (1989) state, "Learning is an activity of the whole body. It involves all of the senses: sight, sound, touch, taste, and smell. Theorists believe that well-integrated individuals use all of their senses to process information effectively in their environment" (p.12). Activities such as games, songs, and map activities offer opportunities for tapping students' strengths and help them to learn. Using projects is an important strategy to provide opportunities for students to use their musical, spatial, and kinesthetic skills to present and display information (White et al., 1992) as well as the more traditional skills. Technology tools such as Carmen San Diego are also an "effective tool aimed toward encouraging investigation into geography when incorporated into the curriculum." (Robinson & Schonborn, 1991, p.353).

In addition to projects, there is much support in the literature for a variety of assessment tools. Fogarty (1992) believes good assessments should demonstrate transfer in the skills that the students is required to exhibit. Confirming Dewey's philosophy of active learning, Burke (1994) supports the use of performances and exhibitions as tools to motivate and empower the learning process. Effectively structured, appropriate learner outcomes can be attained using these activities The most common student products, which are mainly linguistic, leave out important skills which students possess and which are important to developing the student's potential (White et. al., 1992). Performances and exhibitions provide students with the opportunity to demonstrate what they have learned through quality work (Burke, 1994).

Project Outcomes and Solution Components

As a result of integrated curriculum using geographic conceptual themes, during the period of September 1995 to January 1996, the 3rd and 4th-grade students in the targeted classes will increase their knowledge and application of geographic concepts, as measured by teacher constructed test, students logs, and teacher journals.

In order to accomplish the terminal object, the following processes are necessary:

1. Develop units of study that will integrate literature and geography.

2. Outline the Five Geographic Themes as presented by the Joint Committee on Geographic Education of the National Council for Geographers (Pigozzi, 1990) will be utilized as a conceptual framework for curriculum development.

As a result of a kinesthetic, "hands on" approach to geographic instruction, (during the period of September 1995 to January 1996) the third and fourth grade students in the targeted classes will increase their knowledge and concepts, as measured by student logs, teacher journals, and performance-based assessments. In order to accomplish the terminal objective the following processes are necessary:

1. Develop learning activities that address different learning styles and the seven intelligence's.

2. Develop assessments that will allow for the different learning styles and the seven intelligences.

Action Plan

As a result of the research and new district initiatives, the following action plan was developed. The plan centers around integration of curriculum through literature: third grade uses an Illinois theme emphasizing pioneers; fourth grade focuses on American folklore to develop regional themes. Activites for physical education, music, and art were all integrated into the unit. The media center provided support for resources and technology. Effort was made to develop activities and assessments to foster learning in children of all abilities and intelligences.

Third Grade

I. Early Illinois (September 6-22)

A. Study the movement and make up of glaciers. Incorporate science units of water cycle and geology (rocks, mountains, and geology).

B. Activities

1. Discuss survival in glacier times-problem solving in cooperative groups.
2. Become rock detectives- rock and fossil collections.
3. Experiment with water ice and rocks.
4. Read various literature selections with accompanying writing activities.
5. Create landform artwork
6. View National Geographic Videos on glaciers, mountains, and volcanoes.
7. Run the "Oregon Trail". **P.E. Teacher**

8. Play states tag.--**P. E. Teacher**

II. Illinois Region (Before Becoming a State) (September 25-October 13)

A. Study the natives and first European settlers in Illinois. Tie in Lake Michigan and Mississippi River in both Chicago-Illinois history.

B. Activities

1. Take field trip to Chicago Historical Society
2. Simulate Joliet and Marquette voyages with accompanying travel logs.
3. Prepare mini-research for oral group presentation for an early settler Illinoisian.
4. Describe canoe trip down the Mississippi writing assignment.
5. Read aloud Mark Twain selection.
6. Participate in compass activities--**P.E. Teacher**

III. Illinois Becomes a State- Pioneers (October 16-December 22)

A. Study the prairie life of Illinois in the Westward movement of pioneers (Oregon Trail).

B. Activities

1. Read aloud from Little House series and Addie Across the Prairie.
2. Include daily discussions, journalizing, artwork, and a culminating project which may include a play, picture book or skit of some kind. Novels include: Wagon Wheels, Sarah, Plain, and Tall, Next Spring an Oriole, and Prairie Songs.

3. Analyze an ongoing map of the Oregon Trail which will accompany the reading of , If You Traveled West in a Covered Wagon .
4. Write expository paper on pioneer life.
5. Create pioneer games from materials of the time. Demonstrate and play games with others with P.E. Teacher.
6. Simulate wagon train group problem solving activity.
7. Create a class quilt.
8. Have a "pioneer day" where students simulate a day in the life of a pioneer.
9. Decorate the classroom for a pioneer Christmas.

IV. The West of the 1800s (January 8-22)

A. Study the Oregon California area of the mid-1800s to the turn of the century.

B. Activities

1. Write a persuasive paper convincing one to move to Illinois, Oregon, or California territory.
2. Reenact the 1849 Gold Rush.
3. Investigate ghost towns.
4. Simulate panning for gold.
5. Include reflections and problem solving on above activity.
6. Read If You Lived During the Time of the San Francisco Earthquake.
7. Write a newspaper report as an eyewitness to the earthquake.

Fourth Grade

I. Building Prior Knowledge of Geographic Features (August 28-September 22)

A. Give pretests of geographic features and regional characteristics

B. Establish student log procedures

C. Read Paul Bunyan, by Steven Kellogg and map Bunyan's progress across the U.S.

D. Develop inquiry statements on landforms (Appendix D)

E. Establish research teams.

F. Introduce research materials in media center--**Media Center Director**

G. Conduct research on geographic features.

H. Make a collage and create a model of assigned geographic feature based on research.

I. Assess models using a rubric (Appendix E)

J. Share models with a selected audience.

K. Develop a slide show on geographic features.--**Media Center Director**

L. Learn the song, "America, The Beautiful"-- **Music Teacher**

M. Participate in a program in which they tally miles they run and using a map scale convert their miles to distance traveled across the U.S.--**P.E. Teacher**

N. Complete map activity teaching the relationship of physical landforms to map symbols.

O. Draw major landforms on maps in logs.

P. Using different color and sized buttons, have students categorize button and offer explanations of organization.

Q. Using their own categorization system, divide U.S. into regions and record divisions on an overhead transparency of the U.S.

R. Share transparencies in groups and discuss likeness and differences.

S. Instruct on concept of "region."

T. Select a region and incorporate physical features in listing recreational activities.

U. Write a descriptive paragraph on a selected land form.

V. Play states tag-- **P.E. Teacher**

W. Perform orienteering activities--**P.E. Teacher**

II. Building Five Geographic Concepts (September 25-September 26)

A. View National Geographic CD ROM program on five concepts

B. Discuss how students will use the concept during their study of literature.

III. Integration of Literature

NEW ENGLAND REGION (September 29-October 13)

A. Using Paul Bunyan, Retrace Paul Bunyan's route across the U. S. emphasizing the five geographic concepts.

B. Read Icabod Crane and Paul Revere's Ride emphasizing place. Incorporate reading comprehension and HOTS activities.

C. Read aloud Sarah, Plain, and Tall.

D. Learn whaling songs--**Music Teacher**

E. Incorporate fall colors of New England by realistic tree drawing in art.

F. Teach mini-unit on photosynthesis and fall leaves in science.

MID-ATLANTIC/ APPALACHIAN REGION (October 13-October 24)

A. Read The Step-Child Who Was Mighty Bad. Compare to other versions of Cinderella (i.e. The Scarfaced Girl, Chinese version, etc.). Chart "place" characteristics and discuss relative location of origin of stories.

B. Read The Twist Mouth Family and perform creative dramatics and chart characteristics of place.

C. Learn song from region (need to find)--**Music Teacher**

D. Study sociological aspects of folklore and motifs--**Media Center Director**

E. Learn square dances native to the region--**P.E. Teacher**

SOUTHERN REGION (October 30- November 20)

A. Read Conjurer Wives, Why Alligator Hates Dog, Sally Ann Thunder Ann Whirlwind Crockett emphasizing characteristics of place, characterization, and parts of a story (i.e. plot, climax, etc.)

B. Read Brer Rabbit and have students design an amusement park ride that correlates with the parts of the story (i.e. climbing a hill leads to climax, etc.)

C. Read aloud scary legends on Halloween.

D. Read The Dark Thirty and discuss dialect--**Media Center Director**

E. Read biography of Mattie Lou O'Kelly and create picture biographies in art.

F. Teach mini-unit on time lines.

MIDWEST AND HEARTLAND REGION(November 20- December 22)

A. Read biography of Mark Twain. Discuss the traditions of story-telling.

B. View video Mark Twain and Me.

C. Write a letter pretending you are the main character in the video. Describe to your family the "place" characteristics you observe in your visits with Mr. Twain.

D. Discuss the history of the Mississippi River emphasizing the concept of movement.

E. Calculate miles between major cities on the Mississippi and conduct an inquiry learning lesson on methods of travel and time it would take for completion of journey.

F. Generate hypotheses about the location of major cities along the Mississippi River.

G. Assign students various folk heroes/ legends (i.e. John Henry, Casey Jones, etc.) to research and develop oral biographies to present to class.

SOUTHWEST REGION (January 8-February2)

A. Read Pecos Bill and review concepts.

B. Create own tall tale legend hero.

C. Begin discussing the history of Native American peoples using the concept of movement.

D. Read various legends native to regional tribes.

E. Play Native American games--**P.E. Teacher**

MOUNTAIN PACIFIC REGION (February 2- February 28)

A. Research Native American peoples of region and present information.

B. Find a legend from this region and have students act out plot.

IV. Culminating Activities (March 5-8)

A. Write a letter to your parents convincing them to move to one of the regions studied.

B. Imagine your region in the year 2050. At the present rate of population and pollution, what will your region look like. Present possible solutions to class.

C. Create a travel brochure including all the geographic concepts learned for the entire United States using information about each region.

D. Create two more verses to the song "America the Beautiful."

CHAPTER 4

PROJECT RESULTS

Historical Description of Intervention

The researchers' objectives during the five-month period of September 1995 to January 1996 was to increase the knowledge and application of geographic concepts of the targeted 3rd and 4th-grade classes. This objective was measured by teacher constructed tests and student and teacher reflections and was accomplished through the use of curriculum integration using the five geographic themes presented by the Joint Committee of The National Council for Geographers (Pigozzi, 1990). A second objective was accomplished by incorporating activities and assessments that addressed different multiple intelligences and learning styles. An emphasis was placed on kinesthetic learning through hands-on experiences. The success of this objective was measured by performance-based assessments and student-teacher logs.

Third grade. The implementation of the 3rd-grade action plan began with a mini-unit on the ice age and the movement of the glaciers. The main objective of this unit was to discover how glaciers once covered part of the area that is now Illinois, and formed the Great Lakes. The geographical theme of location was introduced by having students identify their continent, country, and state. Science was incorporated into this unit with the study of the different states of water. Map skills were taught primarily through the use of large laminated Illinois maps that the students would directly write on. Some

activities included were ice age creative writing, experiments with ice and water, and directional Simon Says. One major deviation from this part of the action plan was the deletion of the geology unit. The teachers decided this unit would be better addressed when comparing the earth and moon (a unit taught in the spring).

The next stage consisted of a focus on Illinois as a region. This unit included both early Illinois history and an emphasis on the regional and place characteristics of the state of Illinois. During this unit students kept learning logs, and worked in cooperative groups to study the early Indian tribes. In order to understand the five geographic themes, the students viewed the National Geographic Laser Disc. As each theme was emphasized that portion of the laser disc was reviewed. During this unit the students read stories relating to the rivers, particularly the Mississippi. Instead of research on an early Illinois settler the children created a class prairie encyclopedia, where they researched the animal and plant life of Illinois prairie.

After visiting the Naper Settlement Museum Village in Naperville, Illinois, as an introduction to pioneer life, the third grade began an in depth study of pioneers. This final unit lasted approximately three months. This unit emphasized historical as well as geographical themes. Students were introduced to the geographic concepts of movement and human environment interaction through the study of the westward movement and the effect the settlers had on the lives of the Native Americans and surrounding wildlife. The primary resources used in the unit included, but were not limited to, novels on pioneer life, Apple Valley School Simulation, and the CD ROM program, Oregon Trail. Other

activities included maintaining learning logs, creating pioneer games, developing a class paper on pioneers, and a visit to The Chicago Historical Museum.

There were a few deviations from the pioneer section of the action plan. First the novel, Kate's House, was used instead of Prairie Songs . The researchers never ordered Prairie Songs, but obtained a class set of Kate's House, a novel about pioneers settling in Oregon. Also, instead of creating a class quilt, the 3rd grade students were given the opportunity to explore pioneer artifacts provided by the Napier Settlement. The "pioneer day" was stretched to an entire week of simulation due to the aquisition of both the artifacts and a simulation activity, Apple Valley Simulation. A persuasive writing activity was added, in which the students had to convince a friend or relative to join them on the Oregon Trail. Finally, due to the addition of the Apple Valley Simulation, the extension activities on the West of the 1800s were deleted.

To complement the kinesthetic activities in the classroom, several additional activities were completed in physical education. Initial activities included teaching directions, Run-the-Oregon-Trail, pioneer games, square dances, and invented pioneer games. An additional activity for vocabulary development called, "Treasure Hunt" was also played.

Fourth Grade. The implementation of the 4th-grade action plan began with a unit on basic geography skills. Students participated in activities that focused on landform names and map skills. One activity included reading Steven Kellog's Paul Bunyan, in which students were asked to record in their logs Bunyan's travels across the United States. The targeted classes then participated in a mapping activity on a large classroom map.

Concurrently, students worked in teams to research several major landforms using inquiry based questions (Appendix D) that were generated as a result of class discussion. Students were asked to demonstrate their knowledge through constructing a model of their assigned landform and giving an oral presentation that relayed the information they learned through research.

The teachers of the targeted classrooms used information gained through student reports to introduce the concept of region. Students were asked to place major landforms of the United States onto a blank map. Students then worked in cooperative groups to divide the map into regions using their own critera. Groups collectively defined regions of the U.S. Through teacher direction, students were able to understand the concept of region based on geographic characteristics.

Based on geographic regions, the students began their study of the United States. The action plan outlined the study of the New England region, the Mid-Altlantic/ Appalachan region, the Southern region, the Midwest and Heartland region, the Southwest region, and the Mountain Pacific region. Due to time constraints, the reseachers were only able to cover the first three regions. Each of these regions was introduced through folklore. Students participated in a variety of activities including pair-share reading, comparing and contrasting, and higher order thinking skills. As literature pieces were discussed, classroom teachers helped students to identify geographic features that were mentioned in the texts. These geographic features were then used to develop the five geographic themes.

Many factors caused the researchers to deviate slightly from the original action plan. The first contributing factor resulted from the veto of a mini-grant application for classroom computers. This prevented students from being able to play the game, "Where in the U.S.A. is Carmen San Diego?" and completing related activities. Furthermore, students were also unable to access the program "Where in the World is Carmen San Diego?" as they had the previous years, due to the installation of a new computer lab.

The weather prohibited the painting of both U.S.A. and world playground maps in the fall. Although the maps had been purchased and the date and rain date for completing this activity were set, inclement weather prevented painting the stencils from occurring while it was still warm enough.

The researchers greatly over-estimated their ability to cover the material listed in the time allotted. This was due to a variety of reasons. Certain projects such as the landform research project and the literature components took longer than anticipated to complete. Other activities were done in the classroom that were not listed on the initial action plan. For example, an entire unit on Mardi Gras developed out of student and teacher interest. As a result, some of the original activities were not done or substitutions were made in the action plan.

The final factor in the alteration of the research plan was the addition of a new staff member to the fourth grade teaching team. The new staff member brought many ideas to the teaching team that had not been considered in the initial planning of the action plan. The new ideas were incorporated into the plan as the teaching team worked

to develop lessons around regional themes. For example, a mini-unit on Mardi Gras was added during the study of the southern United States.

Activities in physical education included compass activities, Run-to-the-Delta, and square dances. Again, the lack of playground maps prevented states tag.

Presentation and Analysis of Results

In order to document the effect of strategies used to integrate curriculum for the targeted third and fourth graders, a posttest identical to Pretest I, on location and landforms (Appendix F) was administered. A summary and comparison of both pretest and posttest scores are presented in Tables 3-6.

Table 3

Percent of Students' Correct Responses on Location Section of Pretest and Posttest For Targeted Third Graders

No. of correct items	Pretest	Posttest	% Change
0-5	75%	20%	- 55%
6-10	20%	20%	0%
11-15	5%	35%	+30%
16-22	0%	25%	+25%

In the pretest, 95% of the third graders could not identify half of the concepts presented. The post-test showed that only 40% of the students fell into this range with the most obvious improvement in the 0-5 items correct range. In the pre-test, 75% of the

third graders scored in this range while 20% scored in this range in the post test. Sixty percent of the students were able to correctly answer 50% of the test items.

Table 4

Percent of Students' Correct Responses on Location Section of Pretest and Posttest for Targeted Fourth Graders

No. of correct items	Pretest	Posttest	% Change
0-5	10%	6%	- 4%
6-10	61%	17%	- 44%
11-15	16%	19%	+ 3%
16-22	12%	58%	+ 46%

Fourth graders demonstrated a similar improvement. The pretest indicated that 71% of the students scored 50% or less. The post test scores show 77% of the fourth graders were able to respond correctly to 50% of the test items.

Table 5

Percent of Students' Correct Responses on Landform Section of Pretest and Posttest for Targeted Third Graders

No. of correct items	Pretest	Posttest	% Change
0-3	25%	10%	-15%
4-6	55%	20%	- 35%
7-9	15%	55%	+ 40%
10-12	5%	15%	+ 10%

Table 6

Percent of Students' Correct Responses on Landform Section of Pretest and Postest for Targeted Fourth Graders

No. of correct items	Pretest	Posttest	% Change
0-3	6%	0%	- 6%
4-6	37%	5%	- 32%
7-9	47%	18%	- 29%
10-12	10%	77%	+ 67%

In the landforms pretest, 20% of the third graders responded correctly to seven or more items. On the post test, 70% of the third graders responded correctly to seven items on more which is an improvement of 50%. Forty-three percent of the fourth graders scored better than 50% on the pretest. In contrast, 95% of the fourth graders were able to

correctly answer seven items or more on the posttest. There was a marked improvement in the 10-12 correct-items-answered range. In the pretest 10% of the fourth graders fell in this range while 77% were in this range for the post test which indicates an improvement of 67%.

A second posttest (Appendix E) was administered in the same style as Pretest II. The same geographic concepts were assessed in both tests, but a different region of the United States was used. In analyzing Posttest II, both targeted 3rd- and 4th-grade students provided more accurate information in answering the questions. The detail given in the third graders' responses seemed to improve significantly while the fourth graders' remained unchanged. The average group score was 16, reflecting a 57% acurracy. This was an improvement of 18% over the pretest score.

The researchers noted several outstanding effects of the intervention. Overall, students seemed more enthusiastic about learning. Both parents and students made specific comments regarding their positive feelings towards the integrated units of study. Teachers of the targeted classrooms frequently heard students make comments such as, "I like geography this year!", "This (activity) is fun!", "I'm really getting this!" At conference time, many parents had similar reactions. One parent took the time to relate a story of her son recreating a kinesthetic activity at home for a younger sibling. Teachers also noted more transference of concepts to new areas of learning throughout the curriculum. For example, students were able to use the geographic concepts accurately in their personal writing. Other students used the geographic concepts to organize a new unit of study without teacher direction. Despite the additional work and time involved to

integrate the curriculum, the researchers felt the experience was both fulfilling and worthwhile. An additional benefit was the improved communication among teachers, not only between disciplines, but between grade levels as well. Students were also able to see visible results of teamwork among staff members, which reinforced cooperative learning strategies used during instruction.

Conclusions and Recommendations

Based on the results of the posttests and the attitudes of teachers, parents, and students, integration of geography can indeed improve students' knowledge and their ability to apply skills to other areas of learning. Furthermore, integration of curriculum, in general, seems to heighten student involvement and enthusiasm because the concepts have more relevance to the students' world. Using simulations and hands-on activities allowed the teachers to address the different learning styles and intelligences present in each classroom. The researchers found that cooperative learning futher enhanced the units of study by allowing for student interaction and exchange of ideas. Using literature as the foundation from which to build integrated units, provided a rich construct for learning. Integrating physical education, music, and media center activities certainly added depth to the students' learning experience.

Before undertaking the task of integration, one should be aware that it is a time consuming process and requires a variety of resources which may include trade books at varying reading levels, computer software, audio-visual components, and consumable supplies. This inexhuastable list of resources can be costly as well as frustrating to

acquire. These obstacles can become manageable only by eliciting support from administrators, parents, and other colleagues. Grants can be another way to obtain needed resources.

Despite these few drawbacks, the researchers strongly recommend integrating geography into all areas of the curriculum. It appears to heighten student involvement, enhance student learning, and create a positive learning environment. The researchers also recommend providing activities for all learning styles and allowing for assessment through the multiple intelligences.

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Appendixes

Appendix A

Pretest I and Posttest I of Basic Geographic Knowledge

1. Name the city in which you live.
2. Name the large city that you live near.
3. Name the state in which you live.
4. Name the country in which you live.
5. Name the continent in which you live.
6. Name the hemisphere in which you live.
7. Name the planet on which you live.
8. Name as many states as you can which border your state.
9. Name two states in the following regions:
    a. Northeast
    b. Southeast
    c. Southwest
    d. Northwest
    e. Midwest

Students will then be shown pictures of a variety of landforms. Each student will be asked to match the picture with the correct term.

a. lake	g. plateau
b. island	h. delta
c. pennisula	i. canyon
d. harbor	j. river
e. mountain	k. gulf
f. plain	l. valley

Name_____

Five Geographic Concepts

Place	Location	Human/Environmental Interactions	Movement	Regions

Appendix C

Appendix D

Landforms

Research Questions

1. How (and why) are _____ formed?

2. What are the characteristics of _____?

3. How is _____ important to us?

4. Where are the major _____ found in the U.S.?

Appendix B

Problem Solving Pretest II

Your group has been magically transported back to a time when no Europeans lived in the United States of America. You find yourselves in a desert area in what is now called Nevada. You must make a home for yourselves, get food and water, and make clothing in order to survive.

1. What would your home look like? What materials would it be made of?
2. Describe the surrounding land. What does it look like?
3. What kind of clothing would you need?
4. What kind of food would you eat? How would you get your food and water?
5. What kinds of wildlife would you see? What kinds of plants would you see?
6. What kinds of dangers would you face?
7. What would be two good things about living here?

Appendix E

LANDFORM RESEARCH PROJECT

GROUP MEMBERS:

DATE:

CHECKLISTS:

ORAL PRESENTATION	+	√	-
1. speaking voice			
2. eye contact			
3. posture			

CONTENT	SUPERIOR	GOOD	ACCURATE	POOR
Accuracy of information	4	3	2	1
Visual Aid	4	3	2	1
Model - accurate portrayal of landform	4	3	2	1

COMMENTS:

GRADE:

Appendix F

Problem Solving Posttest II

Your group has been magically transported back to a time when no Europeans lived in the United States of America. You find yourselves in a mountainous area in what is now called Colorado. You must make a home for yourselves, get food and water, and make clothing in order to survive.

1. What would your home look like? What materials would it be made of?
2. Describe the surrounding land. What does it look like?
3. What kind of clothing would you need?
4. What kind of food would you eat? How would you get your food and water?
5. What kinds of wildlife would you see? What kinds of plants would you see?
6. What kinds of dangers would you face?
7. What would be two good things about living here?

END

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